Remarks

Upon entry of the foregoing amendment, claims 1-7, 10-12, 85-90, 92-97, 100, 101 and 115-134 and 137-156 are pending in the application, with claims 1, 115, 138 and 156 being the independent claims. Claims 90, 101 and 137, 138 and 139 are withdrawn from consideration. Claims 1, 2, 8, 11, 115, 120, 124, 136, 140, 145, 148 and 150 are sought to be amended. Claims 151-156 are sought to be added. Claims 8 and 136 are sought to be cancelled. Support for the amendment to claims 1, 2, 115, 120 and 136 and new claims 151-156 may be found throughout the specification, *e.g.*, at paragraph [0196] on page 77, paragraph [0038] on pages 15-16, Figure 2, paragraph [0186] on page 71, and original claim 9, and previously presented claims. Entry and consideration of this amendment is respectfully requested.

Based on the above amendments and the following remarks, Applicant respectfully requests that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Withdrawn Rejections and Objections

Applicant thanks the Examiner for withdrawing the rejections and objections in the prior Office Action.

Oath/Declaration

The Examiner contends that the Application adds and claims additional disclosure not presented in prior Application No. 09/984,664, specifically, a method

involving a poliovirus RNA polymerase. The Examiner contends that the Oath/Declaration is defective for failing to properly identify the instant application as being a continuation-in-part.

Applicant respectfully points out that the instant disclosure and that of Appl. No. 09/984,664 is the same and that this application is a divisional application and not a continuation-in-part. Poliovirus RNA polymerase is disclosed in paragraph [0155] on page 57 of the instant application and Appl. No. 09/984,664.

Accordingly, Applicant respectfully requests that the Examiner reconsider the requirement for submission of a new Oath/Declaration.

Rejections under 35 U.S.C. § 112, second paragraph

At pages 6-7 of the Office Action, the Examiner rejected claim 6 for using the alleged trademark "primase." Applicant respectfully traverses this rejection.

A search of the USPTO website inidactes that "primase" is a trademark for an "ENZYME FOR USE AS AN ADDITIVE IN THE PREPARATION OF A DETERGENT COMPOSITION." However, "primase" as used as a trademark is not the same "primase" as recited in the claims, and a person of ordinary skill would recognize this as such. Words, including words that are trademarks, can have more than one meaning and this alone does not control whether a claim term is indefinite. In addition to being a trademark describing an enzyme for use as an additive in the preparation of a detergent composition, "primase" is also a term of art and has a meaning that is entirely independent and unrelated to the trademark name. The word "primase" as recited in the claims, means a type of RNA polymerase that is the product of the dnaG gene. "Primase"

in this context is not a trademark word. The use of "primase" as a trademark to which the Examiner refers is unrelated to products of the dnaG gene. Therefore, Applicant respectfully submits that the metes and bounds of the claim are clear to a person of ordinary skill in the art. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection.

Rejections under 35 U.S.C. § 102

The Examiner has rejected claims 1-3, 6-10, 12, 85-87, 91, 92, 115-117, 120-123, 125-128, 135, 140-142 and 144-147 under 35 U.S.C. § 102(b) as allegedly anticipated by Lu *et al.* (U.S. Patent No. 5,571,669)("Lu *et al.*"). Applicant respectfully traverses this rejection.

The Examiner argues that while the invention does not appear to be drawn to that which is disclosed by the Lu *et al.*, the claims are broad and thus embrace embodiments which are anticipated by Lu *et al.* The Examiner contends that Lu *et al.* disclose a transcriptional sequencing method wherein the method comprises the steps of incubating a target polynucleotide with an RNA primer and extending the RNA primer/DNA template chimera with an RNA polymerase, wherein the method incorporates, during the transcription reaction, one or more nucleotide triphosphate analog reactants, wherein the analog reactants are explicitly contemplated as being a chain terminator.

Applicant respectfully disagrees with the Examiner's analysis. Applicant's claims are directed to, *inter alia*, a method of detecting multiple reiterative oligonucleotides from a target DNA or RNA by an *abortive process*. The method described by Lu *et al.* is a promoter-less primer extension reaction. The elongation complex of Lu *et al.* creates

"increased yields of *fully extended transcripts and minimizes aborted RNA chains . . .*" *See* Abstract (emphasis added). Persons of skill in the art will also appreciate that the mechanism of primer extension of a single stranded target with an RNA polymerase, as taught by Lu *et al.*, is different than the claimed abortive transcription mediated by RNA polymerase and an initiator. An initiator, as is known in the art, is not the same thing as the primers disclosed by Lu *et al.* Initiators, as is known in the art, are recruited to the template and hybridize when RNA polymerase is bound to the template. The 3' end of an initiator binds to an "initiator binding site" in the RNA polymerase. Persons of skill are aware that if the initiator is a mononucleotide, for example, it may bind to the template and initiator binding site. If the initiator is much larger, however, only the bases at the 3' end may bind. In contrast, Lu *et al.* disclose a primer extension reaction wherein the primer fully hybridizes to the template in the absence of a polymerase. The polymerase is then added to extend the primer. Lu *et al.* perform the reaction in this manner *to prevent an abortive reaction.* According to Lu *et al.*, primers at least about 7 or more nucleotides in length are necessary for elongation because "the limited interaction between nascent RNA chains <8 nucleotides and the template-enzyme complex may lead to failed elongation if these starting ternary complexes have a rate of dissociation that is comparable to or exceeds that of further elongation." *See* col. 10, lines 5-9.

Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection.

Rejections under 35 U.S.C. § 103

The first § 103 rejection

The Examiner has rejected claims 4, 5, 88, 89, 100, 118, 119 and 129 under 35 U.S.C. § 103(a) as allegedly obvious over Lu *et al.* in view of Sasaki *et al.* (*PNAS*, 95:3455-3460 (1998))("Sasaki *et al.*"). The gist of the Examiner's rejection is that, while Lu *et al.* do not disclose that fluorescent labels may be employed, Sasaki *et al.* disclose such labels and it would have been *prima facie* obvious to combine the teachings of Lu *et al.* and Sasaki *et al.* to arrive at the claimed invention. Applicant respectfully traverses this rejection.

As indicated above, Applicant's claims are directed to, *inter alia*, a method of detecting multiple reiterative oligonucleotides from a target DNA or RNA by an *abortive process*. The method described by Lu *et al.* is a promoter-less primer extension reaction and does not use an initiator. The elongation complex of Lu *et al.* creates "increased yields of *fully extended transcripts and minimizes aborted RNA chains . . .*" *See* Abstract (emphasis added). Thus, whether it would be obvious to employ fluorescent labels is not material, because Lu *et al.*, either alone or in combination with Sasaki *et al.*, do not disclose or suggest an abortive, reiterative method as claimed.

Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection.

The second § 103 rejection

The Examiner further rejected claims 11, 93, 94, 96, 97 and 124 as allegedly obvious over Lu *et al.* in view of Kramer *et al.* (U.S. Patent No. 5,503,979)("Kramer *et*

al."). According to the Examiner, while Lu *et al.* do not explicitly disclose that the method comprises incubating the transcripts to a target site probe, or that a detection comprises hybridizing a complementary sequence to the synthesized transcripts, immobilizing the target sequence, or immobilizing by hybridization to a capture probe, Kramer *et al.* disclose a method of employing a capture probe to immobilize the target nucleic acid which would undergo further replication and it would be *prima facie* obvious to combine the teachings of Lu *et al.* and Kramer *et al.* Applicant respectfully traverses this rejection.

As indicated above, the method described by Lu *et al.* is a promoter-less primer extension reaction and does not use an initiator. The elongation complex of Lu *et al.* creates "increased yields of *fully extended transcripts and minimizes aborted RNA chains* . . ." *See* Abstract (emphasis added). Thus, whether it would be obvious to incubate the transcripts to a target site probe, hybridize a complementary sequence to the synthesized transcripts for detection, or immobilize the target sequence to a capture probe, is not material, because neither Lu *et al.*, nor Kramer *et al.*, alone or in combination, disclose or suggest an abortive, reiterative method as claimed.

Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection.

The third § 103 rejection

The Examiner further rejected claim 95 as allegedly obvious over Lu *et al.* in view of Kramer *et al.* and further in view of Sasaki *et al.* The Examiner contends that while neither Lu *et al.* nor Kramer *et al.* disclose that fluorescent labels may be

employed, Sasaki *et al.* disclose such labels and it would have been *prima facie* obvious to combine the teachings of Lu *et al.*, Kramer *et al.* and Sasaki *et al.* to arrive at the claimed invention. Applicant respectfully traverses this rejection.

As indicated above, the method described by Lu *et al.* is a promoter-less primer extension reaction and does not use an initiator. The elongation complex of Lu *et al.* creates "increased yields of *fully extended transcripts and minimizes aborted RNA chains* . . ." *See* Abstract (emphasis added). Thus, whether it would be obvious to employ fluorescent labels is not material, because neither Lu *et al.*,, Kramer *et al.* nor Sasaki *et al.*, alone or in combination, disclose or suggest an abortive, reiterative method as claimed.

Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection.

The fourth § 103 rejection

The Examiner further rejected claims 143 and 148-150 as allegedly obvious over Lu *et al.* in view of Gohara *et al.* (*Journal of Biological Chemistry*, 275:25523-25532 (2000))("Gohara *et al.*"). The Examiner contends that while Lu *et al.* do not explicitly disclose that the RNA-dependent RNA polymerase is a poliovirus RNA polymerase or that the target nucleic acid is from a virus, an RNA virus, or a bacterium, Gohara *et al.* disclose that poliovirus RNA polymerase utilizes DNA primers. The Examiner contends that it would have been *prima facie* obvious to employ any of the well known RNA polymerases in the method of Lu *et al.* as Lu *et al.* contemplate transcription of template nucleic acid via use of a DNA primer, and one of ordinary skill would have been

motivated to employ any of the well known polymerases which acts on DNA primers for the purpose of transcriptional sequencing, with a reasonable expectation of success. The Examiner further contended that it would have been obvious to apply the teachings of Lu *et al.* for the purpose of detecting and characterizing the sequence of a virus or bacterium for the well established benefit of diagnosing infectious agents in patients and samples. Applicant respectfully traverses this rejection.

As indicated above, the method described by Lu *et al.* is a promoter-less primer extension reaction and does not use an initiator. The elongation complex of Lu *et al.* creates "increased yields of *fully extended transcripts and minimizes aborted RNA chains* . . ." *See* Abstract (emphasis added). Thus, whether it would be obvious to employ any of the well known RNA polymerases in the method of Lu *et al.*, or apply the teachings of Lu *et al.* for the purpose of detecting and characterizing the sequence of a virus or bacterium is not material, because neither Lu *et al.* nor Gohara *et al.*, either alone or in combination, disclose or suggest an abortive, reiterative method as claimed.

Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection.

Obviousness-Type Double Patenting

The Examiner provisionally rejected, under the doctrine of obviousness-type double patenting, claims 1-13, 85-89, 91-97, 100, 115-136 and 140-150 over claims 11-17 and 19-27 of copending Application No. 10/425,037.

Applicant respectfully requests that the Examiner hold the present provisional rejections in abeyance, pending the identification of otherwise allowable subject matter, at which time Applicant will consider filing any necessary terminal disclaimers.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicant believes that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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